

A Technical Note on Using Gentle Compiler Construction System(GCCS) /LLVM/C/Ruby/HPC Interfacing to Probe the Frontiers of FPGA Based Embedded Systems in the Context of Electro-chemical Sensors & IoT Computing Frameworks.

Nirmal Tej Kumar* && Michelle Ayres Pinto**

***Independent Consultant : Informatics/HPC/Photonics/Nanotechnology.**

****Industrial Consulting : Chemical Engineering-R&D/Brazil.**

***R&D Collaborator : USA/UK/Germany/Israel/Brazil.**

email id - tejdnk@gmail.com

Abstract :

It was proposed to design a possible and feasible chemical informatics framework using Electro-chemical Sensors & IoT Computing Architecture based on GCCS-LLVM-C-Ruby interfacing as explained in the above mentioned TITLE. To the best of our knowledge, this communication is one of the pioneering technical notes.

index words : Sensors/IoT/GCCS/LLVM/C/Ruby interfacing/HPC

I. Inspiration & Introduction :

Electro-chemical Sensors & Information Processing -“The most popular sensing method for toxic gases and oxygen monitoring. Not used for combustible gas monitoring. This is the best all around sensor for ambient toxic gas monitoring. It is simple, reliable and inexpensive”. - Sensor Technology - Delphian Corporation. [Source : <http://www.delphian.com/sensor-tech.htm>]

Compiling Ruby into FPGAs by Shaori Guo and Wayne Luk

Implementing Open flow switch using FPGA based platform by Ting Liu.

FIT/IoT-LAB • Very large scale open wireless sensor network testbed.

II. Informatics Framework & Implementation :

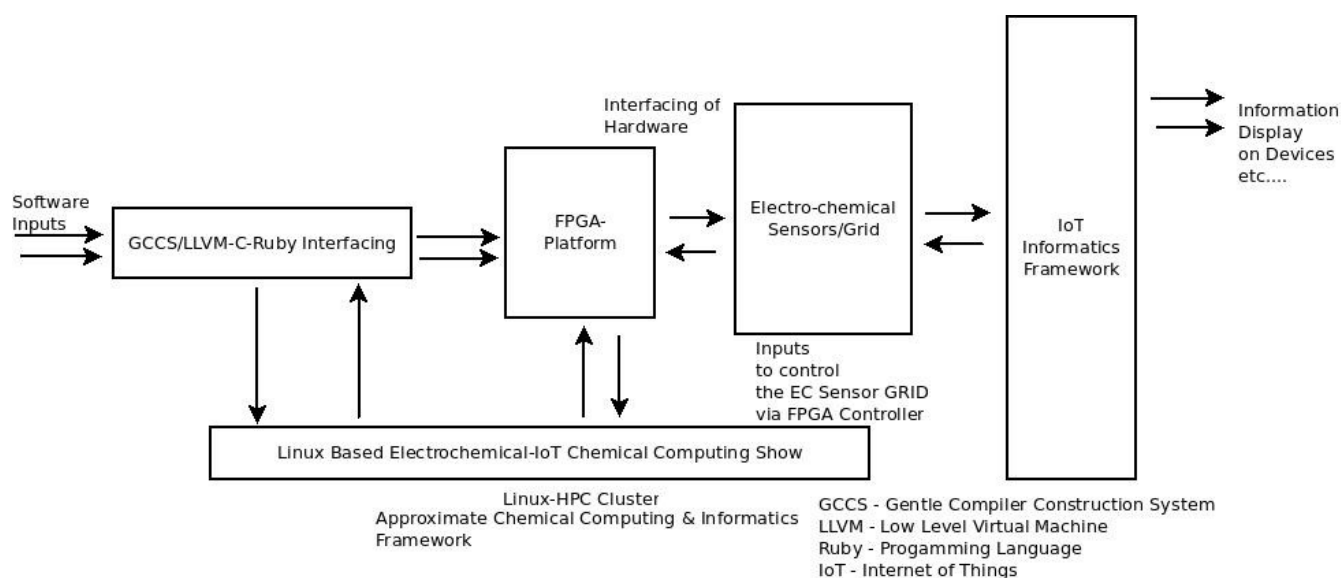


Figure I – Approximate Idea & Informatics Framework Described.

III. Concluding Remarks With Future Perspectives :

Useful Chemical Informatics Framework was demonstrated in an approximate way to encourage novices in multi-disciplinary R&D. Readers should note that the actual implementation/s could vary to some extent. Please check. Testing in progress at the time of submission to vixra.org.

IV. Additional Information on Mathematics & Software Used :

- [i] viXra.org e-Print archive, Nirmal Tej kumar 2017/2018
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- [iii] <https://llvm.org/pubs/2004-Spring-AlexanderssonMSThesis.html>
- [iv] <http://gentle.compilertools.net/>
- [v] [https://en.wikipedia.org/wiki/C_\(programming_language\)](https://en.wikipedia.org/wiki/C_(programming_language))
- [vi] http://www.diku.dk/~torbenm/Basics/basics_lulu2.pdf
- [vi] <https://www.altera.com/> - intel FPGA Website.

V. Acknowledgement/s:

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NON-PROFIT ACADEMIC R&D Only.No competing financial interest/s are declared in preparing this technical note by the authors.

VI. References :

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- [3] <https://www.embedded.com/electronics-products/electronic-product-reviews/configurable-systems/4441373/Integrated-chemical-sensors-support-IoT-apps>
- [4] <https://blogs.sap.com/2016/05/23/chemical-industry-poised-for-digital-change-4-opportunities-provided-by-internet-of-things/>
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- [6] <https://ieeexplore.ieee.org/document/8001670/>
- [7] <https://www.mbtmag.com/article/2015/02/internet-things-what-it-means-chemicals-industry>